

## CONTENTS

### NUMBER 1

<b>A. S. Sambo</b>	1	The measurement and prediction of global and diffuse components of solar radiation for Kano in northern Nigeria
<b>P. C. Jain</b>	7	Estimation of monthly average hourly global and diffuse irradiation
<b>M. M. Elsayed, I. E. Megahed and M. M. El-Refae</b>	15	Experimental testing of fluidized bed thermal storage
<b>H. A. Kubba and W. Y. Saman</b>	27	Evaluation and control of thermal gains through Iraqi windows
<b>P. C. Jain</b>	41	Accurate computations of monthly average daily extraterrestrial irradiation and the maximum possible sunshine duration
<b>K. Al-Jamal, O. Alameddine, H. Al-Shami and N. Shaban</b>	55	Passive cooling evaluation of roof pond systems
<b>A. Anani, S. Zuamot, F. Abu-Allan and Z. Jibril</b>	67	Evaluation of wind energy as a power generation source in a selected site in Jordan
<b>S. M. Habali, M. A. S. Hamdan, B. A. Jubran and A. I. O. Zaid</b>	75	Optimization of insulation thickness in a long term solar storage system
<b>S. M. Habali, M. A. S. Hamdan, B. A. Jubran and A. I. O. Zaid</b>	83	Strategies for solar heating systems
<b>L. B. Mullett</b>	93	Samuel Pierpont Langley 1834-1906. The solar spectrum and the solar constant
<b>Technical Notes</b>		
<b>M. D. C. Doyle and A. S. Sambo</b>	99	Correlation of diffuse solar radiation with air mass
<b>K. K. Gopinathan</b>	103	The distribution of global and sky radiation throughout Lesotho
<b>K. K. Gopinathan</b>	107	A new model for estimating total solar radiation
<b>S. Barbaro, G. Cannistraro, C. Giaconia and A. Orioli</b>	111	The ASHRAE clear sky model. An evaluation in the Mediterranean Zone
<b>Book Reviews</b>		
<b>L. B. Mullett</b>	117	A Victorian World of Science. By A. Sutton
<b>J. S. Clancy</b>	118	Biomass: Regenerable Energy. Edited by D. O. Hall and R. P. Overend
<b>Calendar of Events 1988</b>	119	

## NUMBER 2

N. Fraidenraich and H. S. Costa	121	Procedure for the determination of the maximum surface which can be irrigated by a photovoltaic pumping system
A. M. Mujahid and A. R. M. Alamoud	127	An easily designed and constructed photovoltaic pyrheliometer
J. Cañada and V. Ruiz	131	Energy output for large C.P.C. array configurations located in Madrid, Sevilla and Valencia. Application to industrial process heat requirements
D. E. Prapas, B. Norton and S. D. Probert	137	Flow distributions of the heat transfer fluid for E-W and N-S alignments of CPC solar energy collectors
S. A. Tabassum, B. Norton and S. D. Probert	141	Heat removal from a solar-energy collector with a heat-pipe absorber
W. A. Kamal	147	A theoretical and experimental study of the basin-type solar still under the Arabian Gulf climatic conditions
S. S. Nandwani	159	Experimental and theoretical analysis of a simple solar oven in the climate of Costa Rica—I
M. M. A. Taha, A. M. A. Khalifa and M. Akyurt	171	Solar cookers with banded point focus collectors
M. Martinez	177	On the electrification of rural Mexico
<b>Technical Notes</b>		
M. N. Dalimin and P. K. Chakrabarty	181	Gathering of daily instantaneous global solar radiation using a microcomputer-based data acquisition system
M. H. Omar and M. A. Mosalam Shaltout	185	Solar net radiation over a bare wet field at Giza, estimated on the basis of its close relationship with global radiation
P. S. Asha Iyer, S. Srinivasa Murthy and M. V. Krishna Murthy	191	Correlations for evaluation of the performance characteristics of vapour absorption refrigeration cycles
S. Saknidy and A. Alhasan	199	Solar energy transfer through a substrate
Calendar of Events 1988	205	

## NUMBER 3

J. D. Burton	207	The mechanical coupling of wind turbines to low lift rotodynamic water pumps
A. S. K. Darwish and A. A. M. Sayigh	215	Wind energy potential in Iraq
A. Tofighi	223	Use of solar concentrator for thermal treatment of refractory oxides
F. O. Akuffo and E. A. Jackson	229	Simulation studies on a compact solar water heater in the tropics

<b>H. Gabler and J. Luther</b>	239	Wind-solar hybrid electrical supply systems. Results from a simulation model and optimization with respect to energy pay back time
<b>A. H. Zahed, M. D. Bashir and A. M. A. Khalifa</b>	249	A perspective of solar drying of crops—a country profile
<b>Technical Notes</b>		
<b>S. D. Oda and H. H. Hashem</b>	263	A case study for three combined cycles of a solar-conventional power generation unit
<b>M. A. I. El-Shaarawi and R. A. Ramadan</b>	271	Variation of the performance of intermittent solar refrigerators with initial temperature
<b>J. G. M. Massaquoi</b>	281	Global solar radiation in Sierra Leone (West Africa)
<b>H. Amzil and S. Martinuzzi</b>	285	Effective minority carrier diffusion length of polycrystalline silicon solar cells
<b>G. Datta, H. P. Garg, R. A. Ray and J. Prakash</b>	289	Performance prediction of a cabinet-type solar drier
<b>A. Soler</b>	293	Solar radiation correlations for Madrid
<b>A. Soler and A. Barriuso</b>	299	The parameterisation of global radiation for cloudless skies as a function of solar elevation and the Linke turbidity factor
<b>A. Anani and Z. Jibril</b>	303	Role of thermal insulation in passive designs of buildings
<b>C. D. Rakopoulos</b>	315	Ambient temperature and humidity effects on the performance and nitric oxide emission of spark ignition engines in Athens/Greece
<b>C. Sorapipatana, R. H. B. Exell and D. Borel</b>	321	A bispectral method for determining global solar radiation from meteorological satellite data
<b>M. Chander, K. L. Chopra, J. C. Joshi and A. K. Mukerjee</b>	329	Comparative study of different orientations of photovoltaic system
<b>A. O. Odukwe and S. O. Enibe</b>	335	Energy resources and reserves in Nigeria
<b>Calendar of Events</b>	339	

## NUMBER 4

<b>W. Wolde-Ghiorgis</b>	341	Wind energy survey in Ethiopia
<b>X. Berger, B. Cubizolles and I. Donet</b>	353	Radio-sounding data for the determination of the infra-red sky radiation
<b>C. Torra, J. A. Cusidó and J. Puigdomènech</b>	365	Some experiences on design and calculation of sunspaces in Mediterranean climates
<b>A. Anani, F. Abu Allan and S. Kiwan</b>	379	A three-pronged approach to the study of efficiency of solar water collectors in Jordan
<b>M. R. I. Ramadan, S. Aboul-Enein and A. A. El-Sebail</b>	387	A model of an improved low cost-indoor-solar-cooker in Tanta
<b>C. Bainier, C. Hernandez and D. Courjon</b>	395	Solar concentrating systems using holographic lenses

<b>D. Sadhu</b>	<b>405</b>	Wind power potential of Rio Grande do Sul state of Brazil
<b>S. Chungpaibulpatana and R. H. B. Exell</b>	<b>411</b>	The effects of using a one-node heat capacitance model for determining solar collector performance parameters by transient test methods
<b>H. P. Garg, N. K. Bansal and D. S. Hrishikeshan</b>	<b>423</b>	Thermal performance of a solar hot water system with plastic bag water heater array
<b>Technical Notes</b>		
<b>J. Prakash, H. P. Garg and D. S. Hrishikeshan</b>	<b>433</b>	Effect of tracking on the performance of a built-in-storage type solar water heater
<b>S. Aboul-Enein and M. R. I. Ramadan</b>	<b>441</b>	Storage of low temperature heat in salt-hydrate melts for heating applications
<b>I. A. Olwi, M. A. Ghazi and M. A. Mohsen</b>	<b>445</b>	Wind tunnel simulation of airflow through rows of attached buildings
<b>A. Anani and F. Aba-Allan</b>	<b>451</b>	Potential of renewable energy in Jordan
<b>Book Reviews</b>		
<b>A. A. M. Sayigh</b>	<b>455</b>	Renewable Energy Technologies—Their Applications in Developing Countries. By L. A. Kristoferson and V. Bokalders
<b>A. A. M. Sayigh</b>	<b>455</b>	Physics, Technology and Use of Photovoltaics. By R. J. van Overstraeten and R. P. Mertens
<b>Calendar of Events</b>	<b>457</b>	

## NUMBER 5

<b>R. R. Al-Hindi, A. M. A. Khalifa and M. Akyurt</b>	<b>459</b>	Intermittent duty solar refrigerator assisted by heat pipes
<b>A. I. E. Salem, M. K. Al-Motawakel and A. H. Bassyouni</b>	<b>467</b>	Analysis of solar radiation measurements at Sana'a University weather station (15°N, 44°E)
<b>A. Madan</b>	<b>473</b>	Some physics of amorphous silicon and its applications to solar cells
<b>A. Anani and Z. Jibril</b>	<b>489</b>	Charts for economic evaluation of WECS
<b>S. K. Nanda and S. C. Mullick</b>	<b>495</b>	Optimization of the geometry of a seasonally adjusted solar concentrator employing a tubular absorber
<b>A. M. Taleb and A. J. H. Al-Wattar</b>	<b>503</b>	Design of windows to reduce solar radiation transmittance into buildings
<b>Z. Zrikem and E. Bilgen</b>	<b>517</b>	A simplified design tool for composite Trombe-Michel wall solar collectors
<b>H. P. Garg and S. Chakraverty</b>	<b>525</b>	Thermal analysis of an evacuated tube collector module
<b>H. P. Garg, D. S. Hrishikeshan and R. Jha</b>	<b>533</b>	System performance of built-in-storage type solar water heater with transparent insulation

<b>E. C. Njau</b>	539	A mathematical correlation between variations in solar radiation parameters—I. Daily sums of global radiation and midday global radiation
<b>A. S. Barker, Jr</b>	543	A solar radiation model and energy saving windows in Canada
<b>C. G. Warfel, J. F. Manwell and J. G. McGowan</b>	549	Techno-economic study of autonomous wind driven reverse osmosis desalination systems
<b>C. I. Ezekwe</b>	563	The solar radiation climate of Nigeria
<b>C. Jallut, A. Jemni and M. Lallemand</b>	573	Steady-state and dynamic characterization of an array of air flat-plate collectors
<b>Technical Note</b>		
<b>K. K. Gopinathan</b>	581	A simple method for predicting global solar radiation on a horizontal surface
<b>Book Reviews</b>		
<b>A. A. M. Sayigh</b>	585	Principles of Passive Solar Building Design with Microcomputer Programs. By C. Carter and J. de Villiers
<b>A. A. M. Sayigh</b>	585	Wind Energy 1987. Wind Turbine Shipments and Applications. By T. F. Jaras
<b>Calendar of Events</b>	587	

## NUMBER 6

<b>M. M. El-kassaby</b>	589	Monthly and daily optimum tilt angle for south facing solar collectors; theoretical model, experimental and empirical correlations
<b>J. Cañada</b>	597	Global solar radiation in Valencia using sunshine hours and meteorological data
<b>K. K. Sharma</b>	601	Staebler-Wronski effect: a solution
<b>S. Barbaro, G. Cannistraro, C. Giaconia, A. Orioli, I. Penzar and S. Nikolova</b>	605	A clear sky atmospheric model valid for the Mediterranean zone
<b>N. M. Nahar</b>	611	Performance and testing of a low cost solar water heater cum solar cooker
<b>H. Al-Sharbaty, S. Al-Azzawi and D. Himo</b>	617	An investigation of the permittivity and dielectric loss exhibited by silica glasses
<b>J. P. Oria and G. Sala</b>	629	A good combination: tracking of the sun in polar axis and bifacial photovoltaic modules
<b>S. T. Ahmed</b>	637	Study of single-effect solar still with an internal condenser
<b>P. T. Tsilingiris</b>	645	Computer simulation modelling, thermal performance and design optimisation for solar ponds in Greece

**Technical Notes****I. M. Haddad and  
M. M. Elsayed****K. K. Gopinathan****W. Grainger and J. Rapson****A. Anani and F. Abu-Allan****Calendar of Events**

- |     |  |
|-----|--|
| 653 | Transient performance of fluidized bed solar receiver at various parametric conditions                   |
| 661 | Diurnal variation of the hourly hemispherical insolation   |
| 667 | The routine use of wind and solar data in the sizing of small wind turbine and photovoltaic power plants |
| 671 | Selection of materials for use in solar water heaters  |
| 675 |  |

